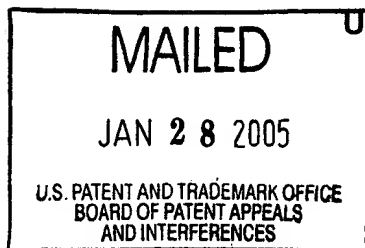


HAIRSTON

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 20



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte

BABACK MOGHADDAM and MING-HSUAN YANG

Appeal No. 2004-0938
Application No. 09/444,689

HEARD: January 13, 2005

Before HAIRSTON, LEVY, and NAPPI, Administrative Patent Judges.
HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 12. In an Amendment After Final (paper number 9), claim 9 was canceled. Accordingly, claims 1 through 8 and 10 through 12 remain before us on appeal.

The disclosed invention relates to a method of classifying images of faces according to gender.

Claim 1 is the only independent claim on appeal, and it reads as follows:

1. A method for classifying images of faces according to gender, comprising the steps of:

supplying a vector support machine with a plurality of training images, the training images including images of male and female faces;

determining a plurality of support vectors from the training images for identifying a hyperplane;

supplying the support vector machine with a test image; and

classifying the gender of the test image with respect to the hyperplane.

The references relied on by the examiner are:

Moghaddam et al. (Moghaddam) 5,710,833 Jan. 20, 1998

Osuna et al. (Osuna), "Training Support Vector Machines: an Application to Face Detection," IEEE Computer Society Conference on Computer Vision and Pattern Recognition, June 1997, pages 130 through 136.

Gutta et al. (Gutta), "Gender Classification of Human Faces Using Hybrid Classifier Systems," IEEE International Conference on Neural Networks, volume 3, June 1997, pages 1353 through 1358.

Claims 1, 4 through 8 and 10 through 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Osuna in view of Gutta.

Claims 2 and 3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Osuna in view of Gutta and Moghaddam.

Reference is made to the briefs (paper numbers 13 and 15) and the answer (paper number 14) for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will sustain the obviousness rejection of claims 1 through 5, 7, 8 and 10 through 12, and reverse the obviousness rejection of claim 6.

We agree with the examiner's findings (answer, pages 3 and 4) that Osuna discloses all of the method steps of claim 1 except "using his SVM classification system for classifying faces by gender." According to the examiner (answer, page 4), "Gutta discloses a hybrid classifier system that classifies images of faces based on gender using trained learning systems." Based on the teachings of Gutta, the examiner states (answer, page 4) that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to employ Osuna's system for classifying images of faces according to gender, since determining the gender of a person is one of the basic identifying features of a person, and Gutta teaches that a trainable learning system can be used to classify face images by gender."

In view of the teachings in Osuna (Abstract; page 130) that the trainable support vector machine (SVM) learning technique is a new method for training Radial Basis Functions (RBF) classifiers, and the teaching in Gutta (Abstract; page 1353) that the hybrid RBF classifier architecture is used for gender classification, we agree with the examiner that it would have been manifestly obvious to one of ordinary skill in the art to apply the gender RBF classifier teachings of Gutta to the SVM in Osuna when training the

RBF classifiers. Such an extension of the gender identification teachings of Gutta to the facial identification teachings of Osuna would have been suggested by the combined teachings of the art as opposed to appellants' disclosed and claimed invention (brief, pages 6, 17 and 18).

Appellants' arguments throughout the briefs that Osuna is directed to object detection and not object classification as disclosed by Gutta is without merit in view of the fact that Osuna directly mentions the use of the SVM as a classifier (Abstract; page 130). The mere fact that Osuna is directed to the use of low-resolution images and Gutta is directed to the use of high-resolution images is of little concern to us in light of the noted RBF classifiers in the publications which can be used for facial classification as well as gender classification (brief, page 8; reply brief, page 6). The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to the artisan. In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

In view of the foregoing, the obviousness rejection of claim 1 is sustained. The obviousness rejection of claims 2, 4, 5, 7, 8 and 10 through 12 is sustained because appellants have chosen to let these claims stand or fall with claim 1 (brief, page 5).

Based upon the teaching of Moghaddam (column 11, lines 15 through 18) to “include only the interior of the face” during facial recognition to permit the system to concentrate on the facial features to be recognized, we agree with the examiner’s conclusion (answer, page 7) that it would have been obvious to the skilled artisan to apply this teaching to the modified teachings of Osuna so that the SVM will concentrate on the person’s face, as opposed to the hair on the person, during the classification process. Appellants’ argument (brief, pages 10 and 12) that Moghaddam is not concerned with gender classification is without merit in view of the fact that Gutta was relied on by the examiner for such a teaching. In summary, the obviousness rejection of claim 3 is sustained.

The obviousness rejection of claim 6 is reversed because the examiner has not pointed to any evidence in the record to support the conclusion that “[t]he exact sizes and dimensions of the test images are considered to be arbitrary design parameters since no unexpected results are produced by using a 21 x 12 [252 pixels] test image as opposed to a 19 x 19 test image” (answer, page 5).


DECISION

The decision of the examiner rejecting claims 1 through 8 and 10 through 12 under 35 U.S.C. § 103(a) is affirmed as to claims 1 through 5, 7, 8 and 10 through 12, and is reversed as to claim 6.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART


KENNETH W. HAIRSTON
Administrative Patent Judge


STUART S. LEVY
Administrative Patent Judge


ROBERT NAPPI
Administrative Patent Judge

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